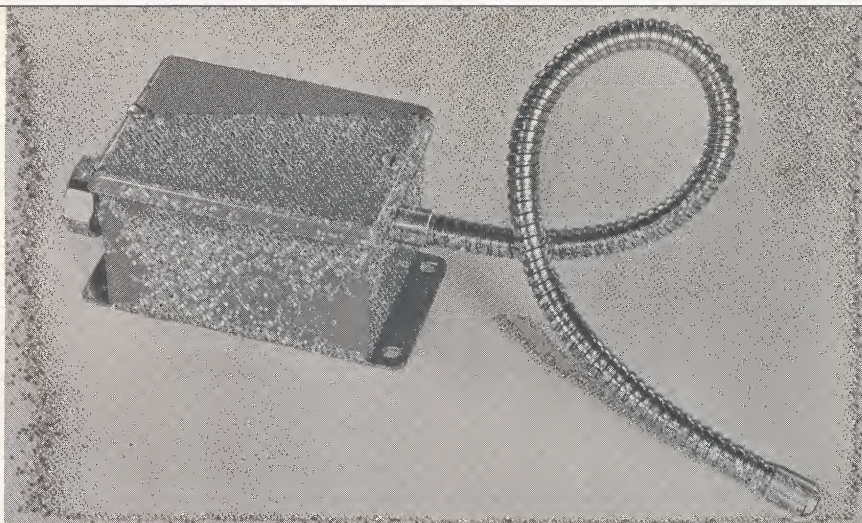


Bausch & Lomb FIBER OPTICS LIGHT SWITCH



Here's a quick, accurate, inexpensive way to determine quantity, need, size, proximity, color and light travel in a variety of applications.

A BAUSCH & LOMB EXCLUSIVE

The Fiber Optics Light Switch is actually a complete system, unlike any other electro-optical relay available today. Light source, electro-optical relay and flexible optics probe are all completely contained in a small standard conduit box. Simply hook it up to a single phase 115-volt power supply and it is ready to work in *your* application. Output is provided from a double pole, double throw 5-amp relay.

For optimum performance under difficult conditions, a sensitivity control is provided. This can be used to adapt the Light Switch when working under high-ambient light, at the limit of detection distance, or at a high switching speed.

SIMPLIFIES MANY DIFFICULT AND EXPENSIVE TASKS

The Light Switch detects variations in reflected or direct light due to objects passing in front of the light switch, changes in relative position or location of moving parts, or changes of illumination.

A unique "light wire," made up of flexible optical glass fibers, transmits light from the internal source to the desired location. The light wire's flexibility permits it to be threaded over, under or around obstructions, or into small holes and crevices. The light wire (it's a split bundle) also returns the reflected light (or direct light from an external source) to the photo cell. For highest flexibility, the light wire can be supplied in a flexible metal cable shield.

The detector, amplifier and power supply circuits are solid state, insuring reliability and long trouble-free service. All components, except the probe, are packaged in a standard conduit box to simplify installation of the light switch in almost any location. Output is provided from a double-pole, double-throw, 5-ampere relay.

CUTS COSTS IN A NUMBER OF INDUSTRIAL APPLICATIONS

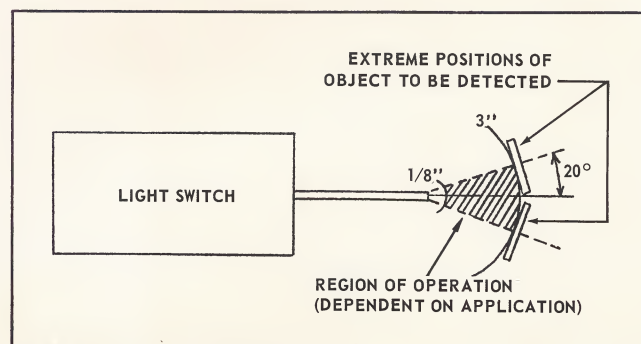
Working in conjunction with other equipment, the light switch functions as a counter, a tachometer, a detector

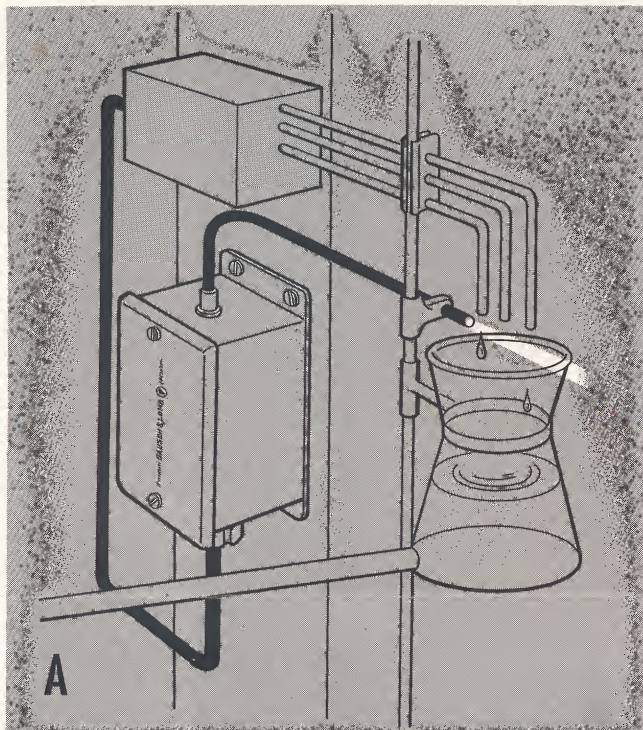
or a safety device. While the applications for this device are limited only by the users' imagination, here are a few general suggestions:

- Objects passing on a conveyor belt or through a hopper can be counted by connecting the light switch output to a suitable counter. Angular velocity can be measured by painting a light mark or putting masking tape on the rotating part and connecting the output to a frequency meter.
- The duration of the contact closure is equal to the time it takes an object to pass in front of the Light Switch. If a constant velocity is maintained, the size of various objects can be detected and recorded.
- The relative position of any object to another can be detected by the Light Switch. This enables the device to be used as a limit switch in many applications. No physical contact with the object is required.
- Optical Filters installed internally or in front of the optics make the Light Switch color selective.

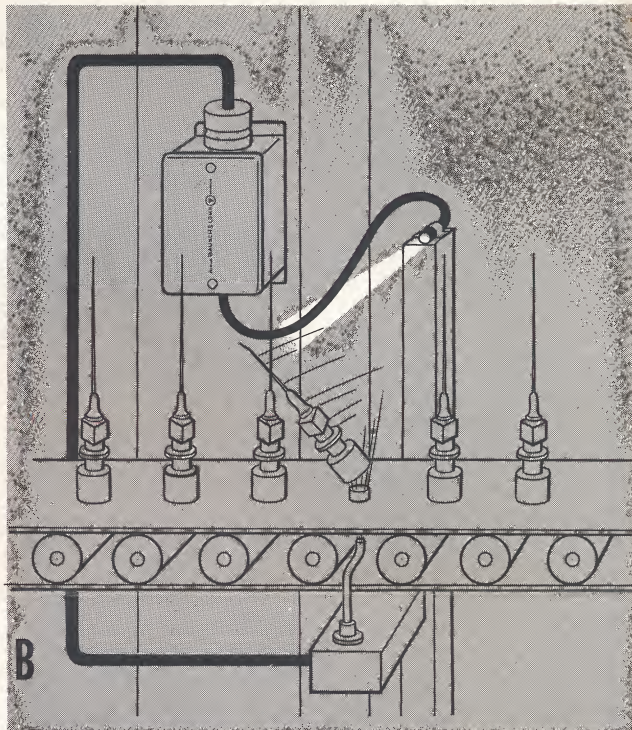
Ambient light conditions can be monitored and lights turned on or off as desired.

The Light Switch can also serve as an industrial watchdog in many applications. Once triggered, it sets off an alarm which can be stopped only by interrupting the power supply to the detector. Ideal for safety applications and alarm systems.



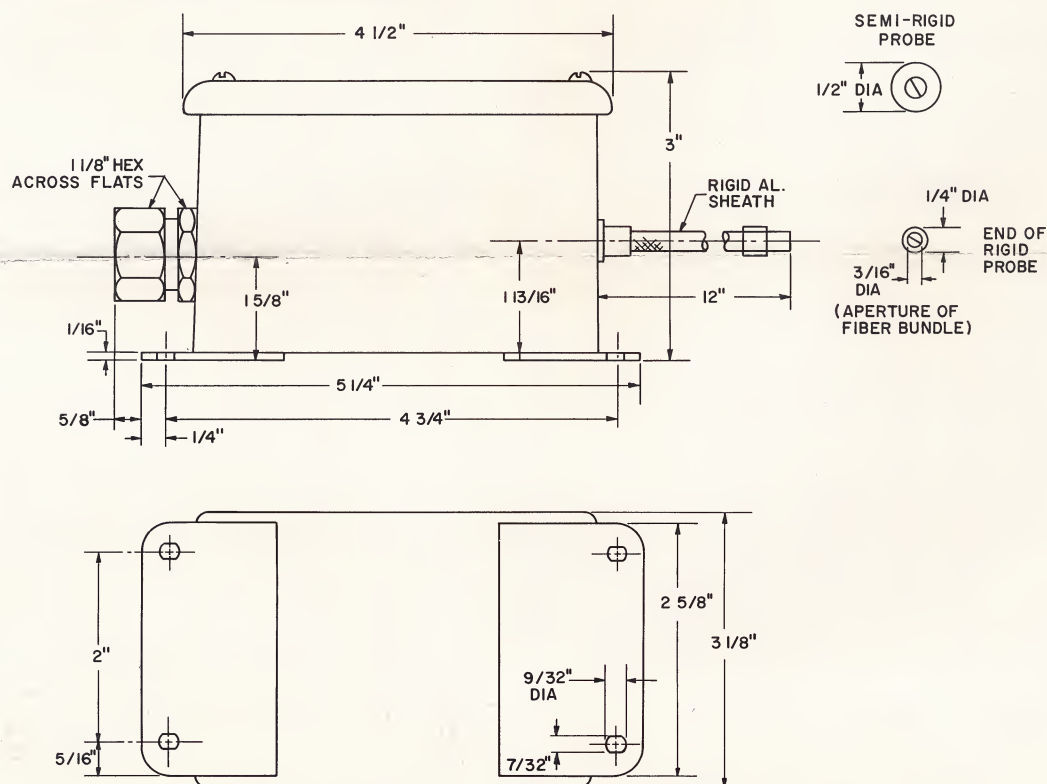


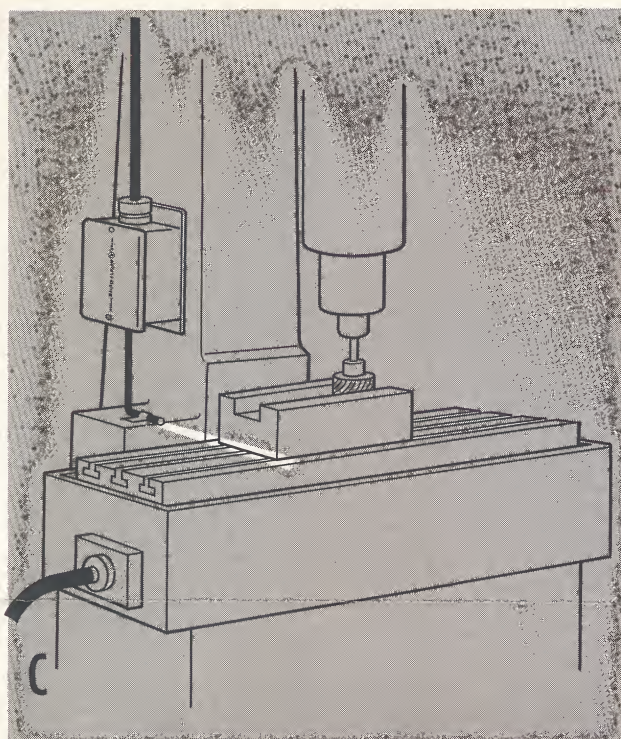
A. Light Switch controls liquid flow by "counting" drops of individual liquids entering jar. Light Switch sends electrical impulses to control box. When sufficient amount of first liquid has been added, valve is automatically closed stopping flow of first liquid. Valve allowing second liquid to flow is automatically opened. Useful in pharmaceutical and chemical applications.



B. Light Switch used as monitor on production line. The extremely high sensitivity of the Light Switch permits it to be used in a wide variety of quality control applications. Here it is linked to rejection device. When defective hypodermic needle passes on line, it is detected and automatically rejected.

PHYSICAL DIMENSIONS



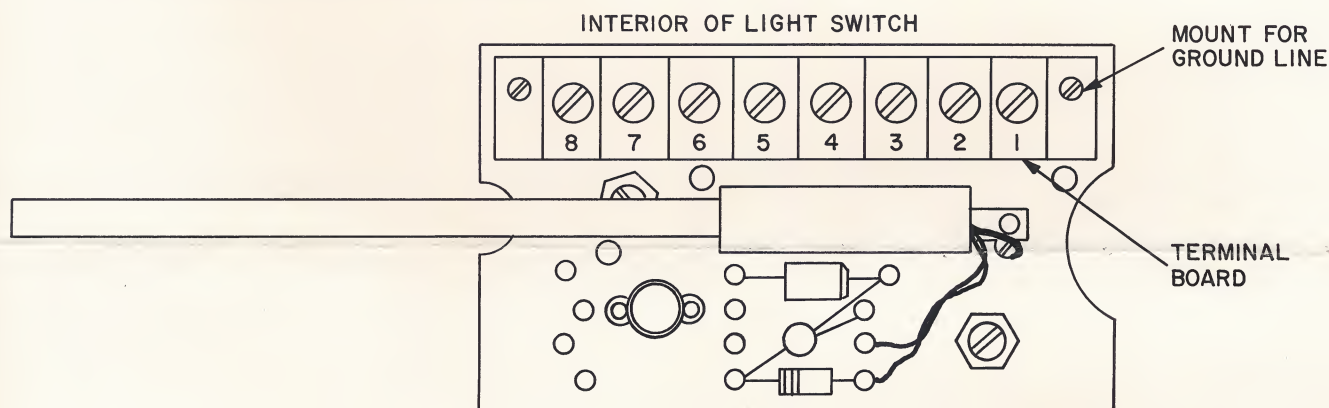


C. Controlling table movement on automatic machine tools. Table movement is started by operator. It is automatically stopped by Light Switch linked to movement control box. Part being machined activates Light Switch as soon as movement is started. When part has moved beyond path of Light Switch machine is automatically stopped.

SPECIFICATIONS

Supply Voltage	105-125V-AC, 60cps.
Upper Temperature Limits	120°F
Operating region for reflected light mode	$\frac{1}{8}$ " to 3" from the tip of the optics within $\pm 20^\circ$ off axis. Can be adjusted to detect up to 5" at a sacrifice of count speed and lengthening of fall time.
Operating region for direct light mode	Depends upon intensity of external light source
Maximum speed of counting	400 counts/minute
Rise Time	20 milliseconds
Fall Time	20 milliseconds
Output Contacts	D.P.D.T.
Contact Rating	5 amp. resistive or inductive at 115 V-AC or 28 V-DC
Enclosure	oil and water-tight steel conduit box

INTERNAL CONNECTIONS



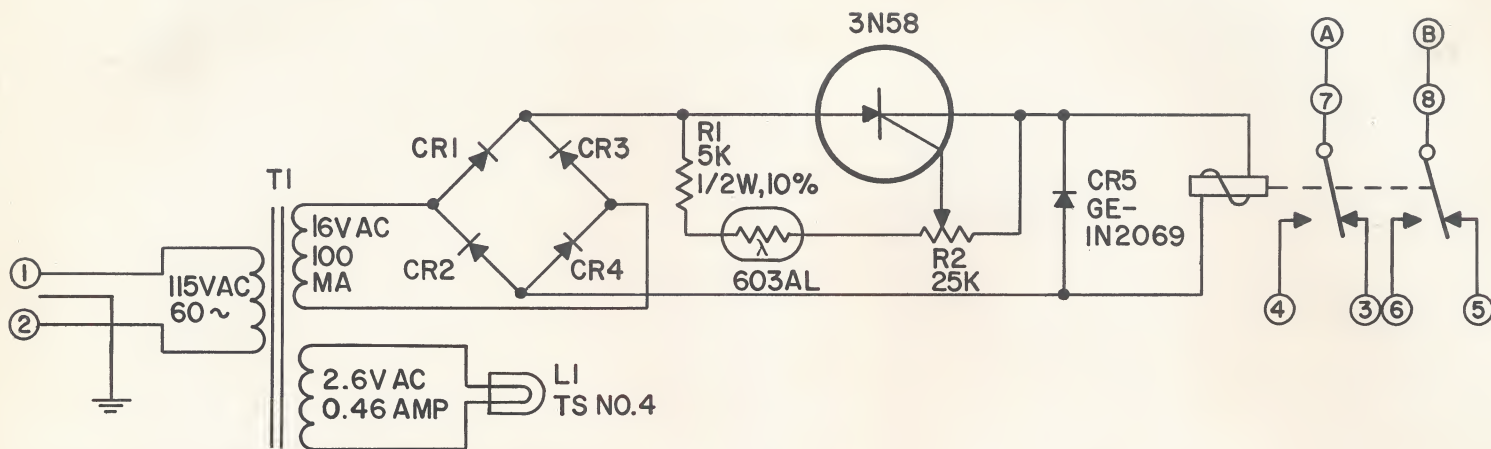
The input power is to be connected to terminals 1 and 2 and a separate ground line run to the mounting screw to the right of terminal 1. The remaining terminals are as follows:

No. 3 NC	connection for pole A
No. 4 NO	connection for pole A
No. 5 NC	connection for pole B

No. 6 NO	connection for pole B
No. 7 Common	connection for pole A
No. 8 Common	connection for pole B

All connections are to be made using pressure fit connection on switch and suitable flexible conduit.

LIGHT SWITCH SCHEMATIC



REPLACEMENT PARTS

- | | |
|--|--|
| 1 G.E. SCS 3N58 TRANSISTOR | 1 CLAIREX 603AL PHOTO DIODE |
| 1 5K Ω $\frac{1}{2}W \pm 10$ RESISTOR | 1 MILWAUKEE #100 RELAY |
| 1 TUNG-SOL TS-4 LAMP | 1 WEBSTER EW-701 LAMPHOLDER OR EQUIVALENT |
| 1 G.I. WO-2 BRIDGE RECTIFIER | 1 IRC SK3 POT KIT WITH A B-11-114-25K BASE |
| 1 G.E. IN2089 RECTIFIER | |

ORDERING INFORMATION			QUANTITY DISCOUNT SCHEDULE FOR STANDARD PRODUCT	
Catalog No.	Description	Suggested List Price	Quantity	Suggested List
37-99-7032	Fiber Optics Light Switch with 12 inch (nominal) rigid probe and 5 ampere, double-pole, double-throw relay, adjustable sensitivity control. Can be mounted on standard electrical conduit Delivery—30 days	\$100.00	1- 9 UNITS	\$100.00 each
			10- 24 UNITS	90.00 each
			25- 49 UNITS	85.00 each
			50- 99 UNITS	76.00 each
			100-500 UNITS	69.00 each
<p>Probes Available as <i>standard equipment</i> include:</p> <ol style="list-style-type: none"> 12-inch "Rigid"—designed to be bent into required shape once and then remain as a permanent fixture. 12-inch STA-FLEX—a semi-rigid probe that can be easily re-positioned. Should be clamped if subject to vibration. Flexible—easily moved, designed to be installed in a moving application. <p>To facilitate ordering, please specify type desired.</p> <p>NOTE: In addition, a number of different probes and relays can be substituted for the standard instrument but a special quotation is required if modifications are needed.</p>				

BAUSCH & LOMB  ROCHESTER, NEW YORK 14602